

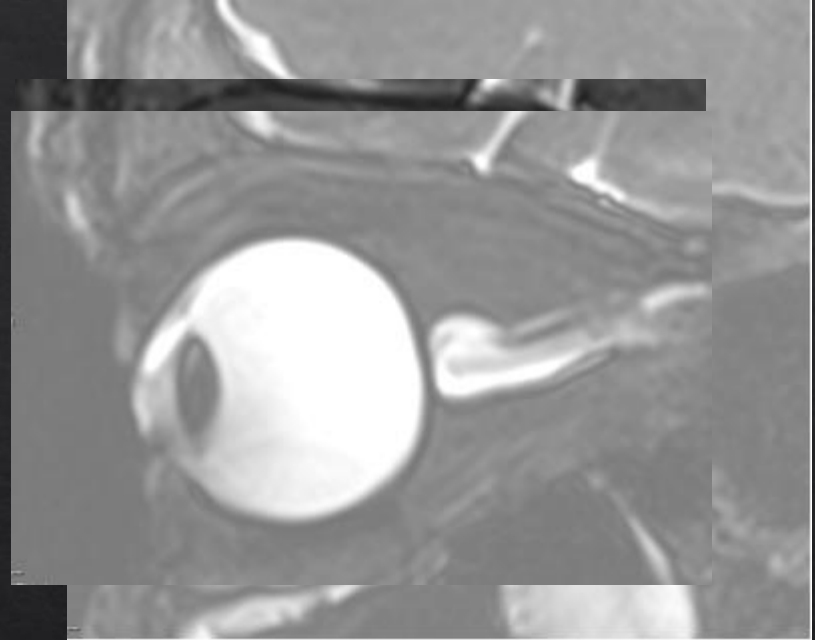
Microgravity Ocular Syndrome (MOS)

Clinical Update 2017



A Clear “VIIP” Case

- ◇ Male, mid 40's at the time of flight
- ◇ No significant PMH/PSH/PFH
- ◇ No medications
- ◇ Normal BP (118/64)
- ◇ Normal lipids
- ◇ ECG Stress test
 - ◇ normal with VO2 max of 51ml/kg

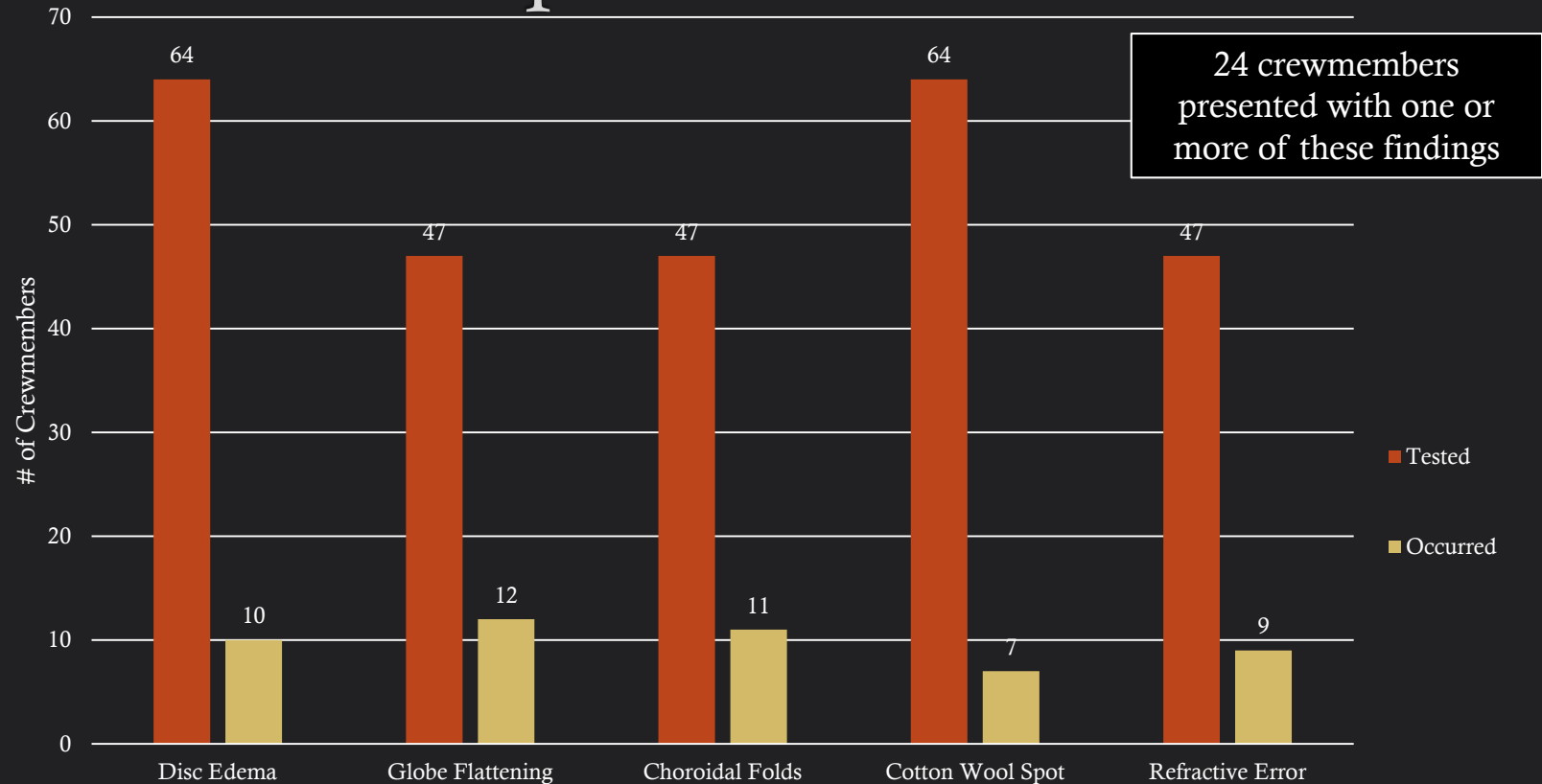


MRI prior to flight

MRI 6 days after
landing

MRI 1 yr post
flight

USOS Individuals with MOS Findings Expedition 1-48



❖ Disc Edema = Modified Frisen Scale Grade 1 or greater at first post-flight eye exam (Fundoscopy)

❖ Globe Flattening = A change compared to preflight (MRI or U/S)

❖ Choroidal Folds = New or worsened compared to preflight (OCT)

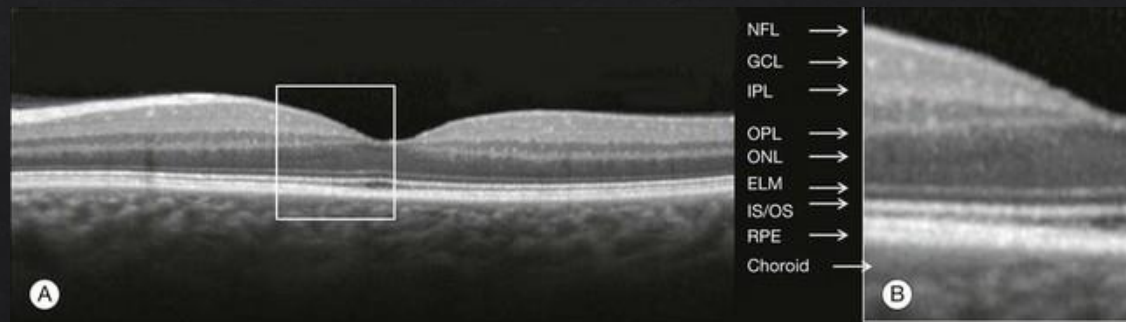
❖ Cotton Wool Spot = Presence In-flight or Post-flight (Fundoscopy)

❖ Refractive Error = Change in Cycloplegic (Spherical) Refraction $\geq 0.75D$ from preflight to first post-flight eye exam.

Clinical Update 2017

Ongoing clinical work

- Correlation between ocular structural changes (OCT) and chronic effect on visual function (visual fields testing)
- Correlation of subcortical white matter hyperintensities (WMH) found on MRI and MOS signs – 2017
- Refinement of cardiovascular parameters and their correlation with VIIP signs – 2017
- We are evaluating the next generation OCT, “OCT2” to determine if it will enhance on orbit imaging/data acquisition
- Resolve OCT alignment issue



What We Are Watching Coming From Our Research Colleagues

- Ocular Health Study and the Fluid Shifts Study – both finish data collection this summer
- Clinical relevance of MRI-based findings
- Implementation of direct ICP measures study pre and post mission
- Correlation between HDT with CO₂ and VIIP (EnviHab)

